April 2001

China

The People's Republic of China (China) is the world's most populous country and the second largest energy consumer (after the United States). Production and consumption of coal, its dominant fuel, is the highest in the world. Rising oil demand and imports have made China a significant factor in world oil markets. All information contained in this report is the best available as of April 2001 and is subject to change.

GENERAL BACKGROUND

China is the world's most populous country, with a rapidly growing economy that has led to sharp increases in energy demand. Economic development has proceeded unevenly, with urban coastal areas, particularly in the South, experiencing more rapid economic development than other areas of the country. China has a mixed economy, with a combination of state-owned and private firms. The government has encouraged foreign investment -- in some sectors of the economy and subject to constraints -- since the 1980s, offering several "special economic zones" in which foreign investors receive preferable tax, tariff, and investment treatment.

Despite moves toward privatization, much of China's economy remains controlled by large State Owned Enterprises (SOE's), many of which are inefficient and unprofitable. Restructuring of the SOE sector, including the privatization of some enterprises, is a major priority of the government, as is restructuring of the banking sector. Many Chinese banks have had to write off large amounts of

delinquent debts from state-owned enterprises. In general, the SOE sector has performed better over the past few years, undertaking cost-cutting measures in preparation for eventual privatization. According to Chinese State Economic and Trade Commission (SETC), 66.5% of SOEs were profitable in 2000, but there are questions as to the accounting standards on which this figure is based. Unemployment is one of the major social concerns which has accompanied the reforms, as SOEs have shed redundant employees.

China's real GDP grew by 8.0% in 2000, up from 7.1% growth in 1999. Real GDP growth for 2001 is forecast at 7.5%. Net Foreign Direct Investment (FDI) in China in 1999 was $40.8 billion, down from a peak of $41.7 billion in 1997. Hong Kong, Japan, Taiwan, and the United States are China's most important sources of FDI. The Chinese government's current Five Year Plan (2001-2005) sets a target of 7.0% real annual GDP growth.

In November 1999, China concluded an agreement with the United States on a package of trade and investment liberalization measures to win United States support for China's entry to the World Trade Organization (WTO). China agreed to open several sectors of its economy to increased foreign participation. While China made concessions in the energy sector, these were relatively modest. Tarriff reductions on energy sector capital goods should facilitate increased sales by U.S. manufacturers, but the opening of China's downsteam petroleum sector initially is to be limited. The agreement with the United States does not remove all obstacles to China's WTO accession. China still is in the midst of negotiations with the European Union (EU). The issue of Chinese subsidies for agriculture is one of the major stumbling blocks.

In general, China's trade surplus has been falling in recent years, and imports have been rising. The 2000 trade surplus of $24 billion was the smallest since 1996, as imports rose 36% for 2000 over 1999 levels. There have been indications based on preliminary data that Chinese exports have been slowing in the first quarter of 2001.

China has several territorial disputes with other regional states which are relevant to the energy sector, particularly the dispute over the potentially hydrocarbon-rich Spratly Islands, which are claimed by China, Vietnam, the Phillipines, Brunei, Taiwan, and Malaysia. Another dispute is over the East China Sea, claimed by Japan.

OIL

China's petroleum industry has undergone major changes in recent years. In 1998, the Chinese government reorganized most state owned oil and gas assets into two vertically integrated firms, the China National Petroleum Corporation (CNPC) and the China Petrochemical Corporation (Sinopec).

Other major state sector firms in China include the China National Offshore Oil Corporation (CNOOC), which handles offshore exploration and production and accounts for more than 10% of China's domestic crude production, and China National Star Petroleum, a new company which was created in 1997.

CNPC in late 1999 set up a holding company, PetroChina, for the purpose of raising money on international capital markets. Its initial public offering (IPO) on the Hong Kong and New York stock exchanges took place in April 2000. Since then, Sinopec and CNOOC also have conducted international public stock offerings.

As a net oil importer since 1993, China's petroleum industry is focused on meeting domestic demand, but it does still export a modest amount of crude oil. The largest export customer by far is Japan, which imports Daqing crude oil to burn directly in electric power plants. As of late 2000, China's exports of Daqing crude oil to Japan were about 80,000 bbl/d, down substantially from export levels during the 1990s. This supply was called into question entirely in early 1999, when CNPC informed the Japanese that oil would no longer be available for export, due to CNPC's desire to refine it for sale

on the domestic market rather than sell it at low world market prices. After protests from the Japanese to the State Bureau of Petroleum and Chemical Industries, CNPC agreed to continue supplies. The incident underlined the tension inherent in having state-owned firms operate with substantial independence, while still having to take the government's foreign policy concerns into account when making sales decisions.

Most Chinese oil production capacity, approximately 90%, is located onshore. One field alone, Daqing in northeastern China, accounts for about 1.0 million bbl/d of China's production, out of a total crude production of a bit above 3.2 million bbl/d. Daqing is a mature field, however, having begun production in 1963, and is expected to show a declining output in future years. At China's second-largest producing field, Liaohe in northeastern China, CNPC has recently announced that it will be seeking foreign partners to help it enhance recovery rates and extend production. In December 2000, regulatory changes were announced which will remove some of the barriers to foreign firms forming partnerships with Chinese oil majors. Government priorities focus on stabilizing production in the eastern regions of the country at current levels, increasing production in new fields in the West, and developing the infrastructure required to deliver western oil and gas to consumers in the East. Chinese officials have said that they expect production in Xinjiang to reach 1 million bbl/d by 2008, but transportation of that oil to consumers in the East remains a major obstacle.

Recent offshore oil exploration interest has centered on the Bohai Sea area, east of Tianjin, believed to hold more than 1.5 billion barrels in reserves. Phillips Petroleum announced in March 2000 that it had completed its appraisal drilling of the Peng Lai find in Block 11/05, and would proceed with development. Full scale production at the field is expected to reach more than 100,000 bbl/d by 2004. CNOOC expects investment in offshore exploration and production between 2001 and 2005 to total more than $14 billion.

Another major offshore oilfield has been developed recently in the Pearl River Mouth area by a consortium including Chevron, Texaco, Agip, and CNOOC. The field began production in February 1999. Meanwhile, improvement in Sino-Vietnamese relations has opened the way for oil and gas exploration in the Beibu Gulf (known in Vietnam as the Gulf of Tonkin). China and Vietnam signed an agreement in December 2000 which settled their outstanding disputes over soverignty and economic rights in offshore areas near their border. The Spratly Islands in the South China Sea also are suspected to hold oil and gas reserves, but the area, as mentioned above, is claimed by several neighboring states.

Foreign investment has been encouraged by the Chinese in exploration and infrastructure development, provided that the Chinese partner holds a controlling interest. The main foreign firms involved include ENI, BP, ExxonMobil, Phillips Petroleum, Shell, Texaco, and Mitsubishi.

With China's expectation of growing future dependence on oil imports, China has been acquiring interests in exploration and production abroad. CNPC holds oil concessions in Kazakhstan, Venezuela, Sudan, Iraq, Iran, and Peru. The most significant deal thus far is CNPC's aquisition of a 60% stake in the Kazakh oil firm Aktobemunaigaz, which came with a pledge to invest significantly in the company's future development over the next twenty years. CNPC has experienced friction with Kazakh authorities, however, over the level of investment in the firm's projects and other management issues. While there had been some discussion of a possible oil pipeline from Kazakhstan to China, this idea seems to have been dropped for the foreseeable future. The Greater Nile Petroleum Operating Company (GNPOC), the Sudanese oil project in which CNPC owns a stake, began exports in August 1999. The CNPC concession in Iraq cannot be developed until United Nations economic sanctions are lifted, at least to the extent of allowing foreign investment in Iraqi oil infrastructure.

Russia's Far East is seen as a potential source of Chinese crude oil imports. The Russian and Chinese governments have been holding regular discussions on the feasibility of pipelines to make such exports possible. The most notable proposed project is a $1.7-billion pipeline from Irkutsk to Beijing being backed by Russia's Yukos Oil, which, if developed, could carry 400,000 bbl/d of oil, mainly

from the Tomsk region. China has proposed an alternate route which would bypass Mongolia and terminate at its Daqing oilfield, where it would link into existing pipelines.

Downstream infrastructure development in China centers primarily on upgrading existing refineries rather than building new ones, due to current overcapacity. In the late 1990s, the Chinese government shut down many small topping plants, which generally made inferior quality petroleum products. A major issue in the Chinese downstream sector is the lack of adequate refining capacity suitable for heavier Middle Eastern crude, which will become a necessity as Chinese import demand rises in the mid-term future. Several existing refineries are being upgraded to handle heavier and more sour grades of crude oil.

Chinese officials have spoken of the need to build a national strategic petroleum reserve, but no formal policy announcement has taken place, and it is unclear whether China would build a government-held reserve of crude oil like the U.S. Strategic Petroleum Reserve (SPR) or make the maintenance of a minimum stock level a regulatory requirement of doing business as a refiner, which is the basis for strategic reserves in Japan and South Korea.

NATURAL GAS

Historically, natural gas has not been a major fuel in China, but given China's significant domestic reserves and the environmental benefits of using gas, China has embarked on a major expansion of its gas infrastructure. Until the 1990s, natural gas had been used primarily as a feedstock for fertilizer plants, with little use for electricity generation. Gas currently accounts for only slightly more than 3% of total energy consumption in China, but consumption is expected to more than triple by 2010. This will involve increases in domestic production and imports, by pipeline, and in the form of liquefied natural gas (LNG).

The country's largest reserves of natural gas are located in western China, necessitating a significant further investment in pipeline infrastructure to carry it to eastern cities. China is planning to build a pipeline, the "West to East" pipeline, from gas deposits in the western Xinjiang province to Shanghai. Though construction had been scheduled to begin in April 2001, the scheduled date has been pushed back to July 2001. Some of the potential foreign partners in the project are reported to have concerns about the $12-$15 billion pipeline's commercial viability, even though letters of intent have been signed with several of the project's intended customers. The concern stems from the possibility that the Tarim Basin gas deposits may provide enough gas for only 20 years of operation, while 40 years of operation would be needed to make it profitable, given the massive construction costs. While it is unlikely to happen in the near future, the West to East Pipeline eventually could serve as a trunkline which could be extended to receive gas from Central Asia. BP, ExxonMobil, and Shell all have expressed interest in participating in the project. Hong Kong's China Light and Power also is a major contender.

China recently announced the discovery of a major gas discovery at Sulige in the Ordos Basin, in the Inner Mongolia Autonomous Region, adjacent to the Changqing oilfield. Proven reserves stand at close to 7 trillion cubic feet (Tcf). Volumes from this field might be able to be put into the West to East Pipeline, which was to run through the area in any case, and help make it economically viable.

Another proposed pipeline project would link the Russian gas grid in Siberia to China and possibly South Korea via a pipeline from the Kovykta gas fields near Irkutsk, which hold reserves of more than 50 Tcf. The cost of the project has been estimated at $12 billion, and a feasibility study to due to be completed in late 2001 or early 2002. The pipeline would have a planned capacity of 2.9 billion cubic feet per day (Bcf/d), of which China would likely consume about 1.9 Bcf/d and South Korea 1 Bcf/d. The main South Korea gas company, Kogas, formally joined the feasibility study in November 2000. The main foreign backer of the project is BP, which owns a 30% stake in Rusia Petroleum , the license holder for the Kovykta gas field. The project faces some hurdles, however, as it would involve South Korea becoming dependent on gas supplies routed through China and North Korea. With South Korea slated to purchase a major portion of the gas from the pipeline, it is unlikely that

the project could be economically viable with only China as a customer.

Several other major domestic pipelines are planned. One will link gas deposits in Shanxi province to consumers in Beijing, and the northeastern Hebei and Shandong provinces. Another planned project would link gas deposits in Sichuan province in the southwest to consumers in Hubei and Hunan provinces in central China. A third project would link the Qaidam Basin in northwest China to the city of Lanzhou. Foreign investors are being sought by CNPC for all of these projects. The SDPC made regulatory changes in July 2000 which will ease foreign participation in gas projects, including opening up the possibility of foreign firms taking majority stakes.

Offshore gas projects also are becoming a significant part of China's gas supply. The Yacheng 13-1 field, developed in the mid-1990s, has been producing gas for Hong Kong and Hainan Island since 1996. The Chunxiao gas field in the East China Sea, being developed by China National Star Petroleum, is also expected to become a significant producer within the next decade. The company puts the field's reserves at more than 1.6 Tcf.

Imported liquefied natural gas (LNG) will be used primarily in China's southeastern coastal region. Guangdong province already has launched a project to build six, 320-megawatt (MW) gas-fired power plants, and to convert existing oil fired plants with a capacity of 1.8 gigawatts (GW) to LNG. In March 2001, it was announced that BP had been selected to build China's first LNG import terminal, to be located near the city of Guangdong. BP will take a 30% equity stake in the project, with CNOOC holding 31% and the rest held by local firms from Guangdong and Hong Kong. Imports through the terminal are slated to begin in 2006, and sources for the LNG are currently being solicited.

COAL

Coal makes up the bulk, nearly 62%, of China's primary energy consumption, and China is both the largest consumer and producer of coal in the world. China's coal consumption in 1999 was 1.08 billion short tons, or about 23% of the world total. According to figures published by the Chinese government, China's net coal exports for 2000 were a record 59 million short tons, with sales primarily to South Korea and Japan.

China's coal industry has had a serious oversupply problem in recent years, particularly in the late 1990s, and the government has begun implementing major reforms. Large state-owned coal mines experienced buildups of unused inventories, and many were operating at a financial loss. A large number of small, unlicensed mines also have added to the oversupply. In 1998, the government launched a large-scale effort to close down the small mines. More than 30,000 small coal mines have been closed, and the effort is continuing. As a result of the closures, depressed local coal prices have started to recover, and combined with cost-cutting measures, some of the large-scale mines have returned to profitability in 2000. Some analysts have questioned whether all of the small mines which have closed officially have in fact ceased production of coal, however. There is anecdotal evidence that at least some of the "closed" small mines may still be in operation.

Over the longer term, China's coal demand is projected to rise significantly, more than doubling by the year 2020. While coal's share of overall Chinese energy consumption is projected to fall, in absolute terms, it will still be increasing. Several projects exist for the development of coal-fired power plants co-located with large mines, so called "coal by wire" projects. Other technological improvements also are being undertaken, including the first small-scale projects for coal gasification, and a coal slurry pipeline to transport coal to the port of Qingdao. Coalbed methane production also is being developed, with recent American investors in this effort including BP, Texaco, and Virgin Oil, which was awarded a concession for exploration in Ningxia province in January 2001. Texaco is the largest foreign investor in coalbed methane, with activities in several provinces. Coalbed methane production is expected to reach 0.4 billion Tcf by 2010.

In contrast to the past, China is becoming more open to foreign investment in the coal sector, particularly in modernization of existing large-scale mines and the development of new ones. The China National Coal Import and Export Corporation is the primary Chinese partner for foreign investors in the coal sector. Areas of interest in foreign invesment concentrate on new technologies only recently introduced in China or with environmental benefit, including coal liquefaction, coal bed methane production, and slurry pipeline transportation projects. Over the longer term, China plans to aggregate the large state coal mines into seven corporations by the end of 2005, in a process similar to the creation of CNPC and Sinopec out of state assets. Such firms might then seek to pursue foreign capital through international stock offerings.

China has expressed a strong interest in coal liquefaction technology, and would like see liquid fuels based on coal substitute for some of its petroleum demand for transportation. The first pilot coal liquefaction plant is planned to be operational in coal-rich Shanxi in late 2001.

The country also is hoping to build on its recent success in expansion of its coal exports. The Russian electric utility UES has announced plans for imports of a modest amount of Chinese coal for power plants in the Russian Far East, where supplies are short. India and and possibly Germany also are seen as potential future import customers for Chinese coal.

ELECTRICITY

As with coal, China's electric power industry experienced a serious oversupply problem in 1998-99, due in part to slower Chinese economic growth. and in part to demand reductions from closures of inefficient state-owned industrial units, which were major consumers of electricity. The Chinese government responded to the short term oversupply in part by implementing a drive to close down small thermal power plants and by imposing a moratorium (with a few exceptions) on approval of new power plant construction, which is due to run through January 1, 2002. Most of the small power plants closed were diesel or coal-fired plants which were opened by provincial or municipal governments as demand grew in the 1980's, and were relatively inefficient and polluting. Even with the moratorium on new construction approvals, many power plants are coming online, having been approved prior to the moratorium. When the moratorium took effect, there was a total of 70 GW of new capacity under construction or with final approval, so there will still be a significant capacity increase in the near future. The largest project under construction, by far, is the Three Gorges Dam, which, when fully completed in 2009, will include 26 separate 700 MW generators, for a total of 18.2 GW.

Another large hydropower project involves a series of dams on the upper portion of the Yellow River. Shaanxi, Qinghai, and Gansu provinces have joined to create the Yellow River Hydroelectric Development Corporation, with plans for the eventual construction of 25 generating stations with a combined installed capacity of 15.8 GW. Seven of these stations are either under construction or currently in operation.

Several nuclear projects are under construction, with Russian, French, and Canadian firms involved in several projects. The United States, in October 1997, announced approval for the sale of U.S. nuclear power reactors to China, in exchange for a Chinese commitment not to supply nuclear technology to Iran. Several additional projects are reportedly under consideration in China's Guangdong, Zhejiang, and Shandong provinces. One project under consideration would add two additional reactors to the Daya Bay nuclear power plant in Guangdong, adding 2 GW to its installed capacity. Another would see the construction of a 6 GW nuclear power complex at Yanjiang in Guangdong. Currently, China has only 2 GW of nuclear generating capacity, with another 600 MW under construction. Nuclear power currently represents just over 1% of China's annual electricity output.

Another key issue for China's power industry is the distribution of generation among power plants. China's stated intention eventually is to create a unified national power grid, and to have a modern power market in which plants sell power to the grid at market-determined rates. In the short term, though, traditional arrangements still hold sway, and state-owned power plants which have

government connections tend to have a higher priority than independent private plants. Additionally, some private plants with "take-or-pay" contracts, which provide for guaranteed minimum sales amounts, have had trouble getting the provincial authorities running the local grids to honor those terms.

In the short term, oversupply and uncertainty are likely to reduce foreign investment in China's power sector. In the longer term, though, growth in electricity consumption is projected at 5.5% per year through 2020. The largest gainer in terms of fuel share in the future is expected to be natural gas, due largely to environmental concerns in China's rapidly industrializing coastal provinces. If a truly competitive market for electric power develops as planned, the Chinese market may once again become attractive to foreign investment. At present, foreign direct investment is allowed only in power generation, but loan financing has been obtained for some power transmission projects.

ENVIRONMENT

China suffers from major energy-related environmental problems. According to a report by the World Health Organization (WHO), seven of the world's ten most polluted cities are in China. The country's heavy use of unwashed coal leads to large emissions of sulfur dioxide and particulate matter. China also is important to any effort to curb emissions of greenhouse gases, as it is projected to experience the largest absolute growth in carbon dioxide emissions between now and the year 2020.

COUNTRY OVERVIEW

President: Jiang Zemin (since March 1993)
Premier: Zhu Rongji (since March 1998)
Population (2000E): 1.3 billion
Location/Size: Eastern Asia/3.7 million square miles (9.6 million square kilometers, slightly smaller than the United States)
Major Cities: Beijing (capital), Shanghai, Tianjin, Guangzhou, Shenyang, Wuhan, Chengdu, Hong Kong
Languages: Mandarin (official), many local dialects
Ethnic Groups: Han Chinese (92%); Zhuang, Uygur, Hui, Yi, Tibetan, Miao, Manchu, Mongol, Buyi, Korean, others (8%)
Religion: Officially atheist; Daoism, Buddhism, Muslim (2-3%); Christian (1%)
Defense (8/98): Army (2.1 million), Navy (260,000), Air Force (470,000), reserves (1.2 million), People's Armed Police (1 million)

ECONOMIC OVERVIEW

Currency: Yuan
Exchange Rate (4/23/00): US$1 = 8.3 Yuan
Gross Domestic Product (2000E): $1.13 trillion **(2001F):** $1.23 trillion
Real GDP Growth Rate (2000E): 8.0% **(2001F):** 7.5%
Inflation Rate (2001F): 2.0%
Current Account Surplus (2001F): $10.9 billion
Major Trading Partners: Japan, United States, European Union, South Korea, Taiwan
Merchandise Exports (2001F): $278.6 billion
Merchandise Imports (2001F): $245.5 billion
Merchandise Trade Surplus (2001F): $33.1 billion
Major Export Products: Light industrial and textile products, mineral fuels, heavy manufactures, agricultural goods
Major Import Products: Machinery, steel, chemicals, miscellaneous manufactures, industrial materials, grain
Monetary Reserves (2001F, non-gold): $181.6 billion
External Debt (2001F): $205.7 billion

ENERGY OVERVIEW

Proven Oil Reserves (1/1/01E): 24 billion barrels
Oil Production (2000E): 3.2 million barrels per day (bbl/d)
Oil Consumption (2000E): 4.6 million bbl/d
Net Oil Imports (2000E): 1.4 million bbl/d
Crude Oil Refining Capacity (1/1/01E): 4.3 million bbl/d
Natural Gas Reserves (1/1/01E): 48.3 trillion cubic feet (Tcf)
Natural Gas Production (1999E): 0.85 Tcf
Natural Gas Consumption (1999E): 0.85 Tcf
Recoverable Coal Reserves (1/1/96E): 126.2 billion short tons
Coal Production (1999E): 1.12 billion short tons
Coal Consumption (1999E): 1.08 billion short tons
Electric Generation Capacity (1/1/99E): 277 GW (210 GW thermal; 65 GW hydro; 2 GW nuclear)
Electricity Generation (1999E): 1,178 billion kilowatthours (936.5 conventional thermal; 222.8 hydro; 14.1 nuclear)

Statistical note: All data reported here exclude Hong Kong, a former British colony which reverted to China on July 1, 1997.

ENVIRONMENTAL OVERVIEW

Minister of Land and Natural Resources: Yongkang Zhou
Minister of Water Resources: Shucheng Wang
Total Energy Consumption (1999E): 31.8 quadrillion Btu (8.3% of world total energy consumption)
Energy-Related Carbon Emissions (1999E): 668.7 million metric tons of carbon (10.8% of world carbon emissions)
Per Capita Energy Consumption (1999E): 25.1 million Btu (vs. U.S. value of 355.8 million Btu)
Per Capita Carbon Emissions (1999E): 0.53 metric tons of carbon (vs. U.S. value of 5.5 metric tons of carbon)
Energy Intensity (1999E): 34,514 Btu/$1990 (vs. U.S. value of 12,638 Btu/$1990)**
Carbon Intensity (1999E): 0.72 metric tons of carbon/thousand $1990 (vs. U.S. value of 0.19 metric tons/thousand $1990)**
Sectoral Share of Energy Consumption (1998E): Residential (28.3%), Industrial (59.9%), Transportation (7.4%), Commercial (4.4%)
Sectoral Share of Carbon Emissions (1998E): Transportation (8.6%), Industrial (75.1%), Commercial (5.3%), Residential (10.9%)
Fuel Share of Energy Consumption (1999E): Oil (27.9%), Natural Gas (3.1%), Coal (61.5%)
Fuel Share of Carbon Emissions (1999E): Oil (23.9%), Natural Gas (2.1%), Coal (74.0%)
Renewable Energy Consumption (1998E): 10,895 trillion Btu* (2% increase from 1997)
Number of People per Motor Vehicle (1998): 125 (vs. U.S. value of 1.3)
Status in Climate Change Negotiations: Non-Annex I country under the United Nations Framework Convention on Climate Change (ratified January 5th, 1993). Signatory to the Kyoto Protocol (signed May 29th, 1998 - not yet ratified).
Major Environmental Issues: Air pollution (greenhouse gases, sulfur dioxide particulates) from the overwhelming use of high-sulfur coal as a fuel, producing acid rain which is damaging forests; water shortages experienced throughout the country, particularly in urban areas and in the north; future growth in water usage threatens to outpace supplies; water pollution from industrial effluents; much of the population does not have access to potable water; less than 10% of sewage receives treatment; deforestation; estimated loss of one-fifth of agricultural land since 1949 to soil erosion and economic development; desertification; trade in endangered species.
Major International Environmental Agreements: A party to the Antarctic-Environmental Protocol, Antarctic Treaty, Biodiversity, Climate Change, Desertification, Endangered Species, Hazardous Wastes, Law of the Sea, Marine Dumping, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Tropical Timber 94 and Wetlands. Has signed but not ratified: Nuclear Test Ban.

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power. The renewable energy consumption statistic

is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.
**GDP based on EIA International Energy Annual 1999

ENERGY INDUSTRY

Organization: *Coal* - China National Local Coal Mines Development Corp., China Northeast & NEI-Mongolia United Coal Co., numerous local state-owned mines and rural collectives; *Coal import/exports* - China Coal Import and Export Group; *Petroleum* - China National Petroleum Corp. (CNPC, PetroChina is its publicly traded subsidiary), China National Offshore Oil Corp. (CNOOC), China National Oil & Gas Exploration & Development Corp. (CNODC), China National Star Petroleum (Star); China National Petrochemical Corp. (SINOPEC); *Oil imports/exports* - China National Chemicals Import and Export Corporation (SINOCHEM), China United Petroleum Corporation (China Oil), China United Petrochemical Corp. (UNIPEC); *Electric power* - China State Power Corp., Huaneng Group, Inc., China National Power Industry Corp. (CNPIC), regional electric power corporations, China National Nuclear Industry Corp., China International Water and Electric Corp. (CWE).; *Energy Finance* - China National Energy Investment Corp.
Major Producing Oil Fields (1999 Production): Daqing (1.1 MMBD), Shengli (0.5 MMBD), Liaohe (0.3 MMBD)
Major Refineries (1/1/01 Capacity): Fushun (184,800 bbl/d), Maoming (170,700 bbl/d), Qilu (160,700 bbl/d), Gaoqiao (150,600 bbl/d), Dalian (142,600 bbl/d), Yanshan (190,800 bbl/d), Jinling (140,600 bbl/d); Zhenlai (160,700 bbl/d)

Sources for this report include: Coal Week International; Dow Jones Newswire; Economist Intelligence Unit; Financial Times, Oil and Gas Journal; Oil Daily; Petroleum Economist; Petroleum Intelligence Weekly; South China Morning Post; U.S. Commerce Department, International Trade Administration -- Country Commercial Guides; U.S. Energy Information Administration; WEFA Asia Economic Outlook, World Gas Intelligence.

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